■ APPENDIXES

A. Safety rules for overhead rigging:

Risk of injury: Overhead mounting requires extensive experience, including among others calculating working load limits, good knowledge of the installation material being used, and periodic safety inspection of all installation material and the unit. If you lack such qualifications, do not attempt the installation yourself. Improper installation can result in body injury. Be sure to complete all rigging and installation procedures before applying power to the unit.

- The unit should be installed out of reach of people and outside areas where persons may walk by or be seated.
- Make sure that the installation area can hold a minimum point load of 10 times the device's weight.
- In fixed installations, fix the unit with self-locking screws/nuts to the mounting point.
- When mounting the unit to truss be sure to secure an appropriately rated clamp to the hanging yoke using a M10 screw fitted through the center hole of the hanging yoke.
- Always use a certified safety cable that can hold 12 times the weight of the device when installing the unit. This secondary safety attachment should be installed in a way that no part of the installation can drop more than 20cm if the main attachment fails.
- Never stand directly below the device when mounting, removing, or servicing the fixture. Make sure the area below the installation place is free from unwanted persons during rigging, de-rigging and servicing.
- The operator has to make sure that the safety-relating and machine-technical installations are approved by an expert before using them for the first time. The installations should be inspected every year by a skilled person to be sure that safety is still granted.

USER MANUAL

LS1243 MultiWall

DMX-controlled RGB LED Batten

ENGLISH Page 2-16

MULTIFORM

RevA 01/2009 Order code: 12-010-0243-80100-1-01

■ Introduction

Dear customer,

congratulations on the purchase of a Multiform-branded item and the trust having been put in us with this decision. Multiform is one of the leading global manufacturers of professional equipment and has decades of experience in design, production and quality assurance.

To meet your requirements, this unit has been designed and built to the highest standards, so that we can assure you that you have made a good and satisfying investment. To take full advantage of all possibilities and for your own safety and the safety of your environment, please read these operating instructions carefully before you start using the unit.

■ Product description

The LS1243 Multiwall DMX-controlled RGB LED batten is a fixture designed for any purpose which requires a linear color-mixing light source, from wall washing to cove lighting.

■ Security advice before use

Warning: Read this section carefully before installing, powering, operating, cleaning or servicing this product!

The following symbols are used to identify important safety information in this manual:

DANGER!
Safety hazard. Risk of injury or death.

WARNING!
Hazardous voltage. Risk of severe or fatal electric shock.

WARNING!
Fire hazard.

WARNING!
Read manual before installation and operation.

■ Maintenance

This unit does not need regular maintenance. The internal circuit is protected by a 250V/2A slow-blow fuse 5x20mm fuse. If this fuse fails, this usually indicates an internal fault requiring servicing by a qualified engineer. The fuse shall only be replaced by a fuse of same specification, and the replacement has to be made by qualified personnel obeying applicable safety rules.

■ Technical data LS1243 Multiwall DMX-controlled RGB LED batten:

LED…… 243pcs. 0.15W DuoSize © (81xR/81xG/81xB) = 36.5W
Mains Input…… AC90-250V~ 50/60Hz
Power supply type……..……..switch mode
Power Consumption……max. 40W
Fuse…….250V 2A T (slow blow, 5x20mm glass)
Sound control……..…internal microphone with Automatic Gain Control (AGC)
DMX connections……3 pin XLR (Male / Female)
Modulation Type…….Advanced Bit Angle Modulation (ABAM)
Control protocol.....DMX 512 (1990)
Dimensions (without brackets)……..W 1000 x H 95 x D 75 mm
Weight ……..5,2 kg

■ Standards

This product complies with the following standards:
EU safety.....EN 60065:2001 +A1
EU EMC.....EN61204-3:2001
EU Harmonics EN61000-3-2:2001
EU Flicker ……EN61000-3-3:1995
US safety ……UL60065
US EMC……..FCC Part 15

This product meets both the EMC Directive 2004/108/EC and the Low Voltage Directive 2006/95/EC.

on again if any key is touched and will switch off again after 25 seconds if the keys are not unlocked by the procedure mentioned above.

Termination

To avoid interference the last unit of a DMX-chain should be terminated. Therefore the DIP switch (9) of the last unit in the DMX-chain must be switched ON.

Maintenance (Boot loader)

The Maintenance (boot loader) function enables the unit to receive firmware updates via the DMX connectors. For further information refer to our website and check “Download”.

Switch on condition

The unit always returns to the last mode before it was switched off. In DMX Slave “SLA” or DMX Mode “d” or DMX Preset Mode “P” all DMX values are cleared if power is switched off.

DMX signal drop condition

The device will retain the status that it was in before the DMX signal got lost, but potential tact settings will be automatically cleared.

DMX channel assignment overview:

Mode > DMX	A	C	P (CH3<50)	P (CH3>50)	D	SLA
CH1	Out1	Out1	Mix	Pattern	Out1	Out1
CH2	Out2	Out2	Level	Level	Out2	Out2
CH3	Out3	Out3	0-49	Speed	Out3	Out3
CH4	0	0	Tact	Tact	Level/Tact	0

General advice:

1. Read this manual completely before using the product.
2. Keep this manual in your records for future reference.
3. Follow all instruction printed in this manual, otherwise warranty may be void.
4. Follow all printed security advice on the product itself. The lighting flash with arrowhead within an equilateral triangle makes you aware of non-insulated AC mains voltage inside the unit. The exclamation mark within an equilateral triangle makes you aware of important operating and maintenance instructions in the literature attached to this product.
5. Take care of enough distance between this product and sources of hum and noise like electric motors and transformers.
6. Carry this product with greatest care. Punches, big forces and heavy vibration may damage this product mechanically.
7. The manufacturer takes no responsibility for injury or damage caused by not following the safety precautions and instructions printed in this manual.

Warning! Class 1M LED product.

1. Do not look into the beam from a distance of less than 40 cm (16 inches).
2. Do not stare into the beam for extended periods at a short distance.
3. Do not view the beam directly with optical instruments such as magnifiers.

Protection from electric shock:

1. Do not connect the AC power plug to the unit before assembly has been completed.
2. Only connect this unit to a mains socket outlet with protective earth connection, ground-fault (earth-fault) protection and overload protection.
3. Where the mains plug or an appliance coupler is used as a dis-connect device, the disconnect device shall remain readily operable.
4. To pull the AC Cord out of the wall outlet or the unit’s AC socket, never pull the cable itself, but only the AC plug.
5. Disconnect the unit from AC supply by pulling the AC plug out of the wall outlet or the unit’s AC socket before any kind of cleaning on the product. Use smooth and dry cloth only for cleaning. Check all connection cables before reconnecting the unit.
6. Do not expose this unit to any dripping or splashing liquids, and do not place objects filled with liquids, such as vases, on the unit. Do not operate this unit near to open water or in high humidity.
7. Choose the position of the AC cord according to the lowest risk of

damage by foot steps or by squeezing it. Take especially care of the AC cord outlet on the unit as well as the AC plug and wall outlet at the other end of the cable.

8. Do not open the unit for service purpose, as there are no user-serviceable parts inside. Warranty will be void in any case of unauthorized service by the user or other not authorized persons.

Protection from fire:

1. Take care of not placing the unit near sources of heat (e.g. powerful amplifiers, fog machines).
2. Allow at least about 6" (15cm) between this unit and other devices or a wall to allow for proper cooling.
3. Be sure this fixture is kept at least 0.5m away from any flammable materials (decoration etc.).
4. Do not stick filters, masks or other materials directly on the LEDs or the LED cover screen.
5. Take always care of sufficient air convection in the unit's environment to avoid overheating, especially when mounting in a closed environment. Make sure air convection slots are not blocked. Do not operate this unit in environmental temperatures exceeding 35 degrees Celsius.
6. Check the total maximum power of your AC wall outlet if you connect several units to one wall outlet and avoid any overloading.

Protection from injury and damage:

1. Never use any accessories or modifications not authorized by the manufacturer of this unit.
2. Choose a location for operation where the unit is protected from vibration and where a fixed mounting position is provided. In case of overhead-mounting, follow appropriate rigging rules and your country's regulations for rigging safety. See appendixes if any.
3. Before plugging the AC cord in the wall outlet, check whether the AC mains voltage and frequency is the same as this product is specified for. Whenever your AC plug should not match the wall outlet, contact you dealer immediately.
4. If fluids have spilled into the unit or small parts have intruded the unit, immediately switch off the unit and hand it over to the authorized service for a security check.
5. Disconnect the unit from AC supply by pulling the AC plug out of the wall outlet or the unit's AC socket during a thunder-storm in order to avoid any damage on the unit due to AC voltage peaks.
6. In cause of not correct function of this unit or damaged AC cord or other damaged parts, pull immediately the AC plug out of the wall outlet and hand the unit over to the authorized service for a security check.
7. To meet all aspects of functionality and security during mainte-

DMX	Value range	Function
CH2	000-255	Level
CH3	050-255	Chase speed
CH4	000-049	Tact off
	050-255	Tact (050=slow / 255=max. speed 23 Hz)

The pre-programmed soft fade or hard switching patterns can be chosen by means of CH1 whilst CH2 is used as a level channel. CH3 allows to set the fade time or pattern speed from slow (value 50) to very fast (value 255). If channel 4 reaches a DMX value of 50 or above a tact function will be added to the chases. The tact speed can be adjusted from slow (value 50) to 23 pulses per second (value 255).

Note: Whether the unit works in static mix mode or pattern mode only depends on the value of channel 3. So make sure the value of channel 3 is lower than 50 to be in static mix mode. Otherwise you will be in pattern mode.

In this mode the potentiometer (1) is disabled.

Addressing has to be done as follows:

001 first device	(CH 1-4)	*factory default*
005 second device	(CH 5-8)	
009 third device	(CH 9-12)	
013 fourth device	(CH 13-16)	and so on.

This setting is stored even if the device is switched off.

Display on/off

If you wish the display to be lit only when a change in operation is made, the DIP switch (10) should be in the position off. Now if any of the buttons is not pressed for more than approximately 25 seconds the display is switched off. As soon as one of the buttons is pressed again, the display switches on immediately. In this case the first touch of the button is ignored in respect to the normal function of that button.

Key lock

Pressing the MODE button (5) for longer than 3 seconds locks all the buttons (5-7) and the potentiometer (1). The display shows "LOC" in alteration to the mode (changing every 2 seconds). Pressing the MODE button again for more than 3 seconds unlocks the button- and potentiometer-functions. Please note: If the display is in OFF-mode it will take approximately 25 seconds before the display switches off. It will be switched

001 first device (CH 1-4) *factory default*
005 second device (CH 5-8)
009 third device (CH 9-12)
013 fourth device (CH 13-16) and so on.

This setting is stored even if the device is switched off.

"P" DMX Preset Mode

If you want to run the pre-programmed patterns and scenes by an external DMX-controller you can use the DMX Preset Mode. Press the MODE button (5) until the display shows "P", indicating operation in "P" (DMX Preset) mode. Set the DMX starting address by simply using the UP/DOWN buttons (6/7). The chosen DMX-address comes effective approximately 3 seconds later and will show up on the display (2) in alternation to the "P".

The unit receives DMX values on a packet of four channels and mirrors the received data on the DMX output (13). If a DMX signal is present the DMX LED (3) will turn on. The four channels control the unit as follows:
If DMX-value of channel 3 is **lower than 50** the unit works with static colours:

DMX Channel	Value Range	Function
CH1	000-255	Output mix choice from presets (see "C" mode)
CH2	000-255	Master level
CH3	000-049	Static mix mode active
CH4	000-049	Tact off
	050-255	Tact (050=slow / 255=max. speed 23 Hz)

Output mix presets can be activated by means of CH1 whilst the chosen mix can be adjusted with CH2. If the value of CH4 is above 50 the unit is set to tact mode. The tact speed for any fixed output mix chosen on the first channel can be adjusted from zero (value <50) to 23 cycles per second (value 255).

If DMX value of channel 3 is **equal or higher than 50** the unit works in pattern mode:

CH1	Pattern	CH1	Pattern
000-015	Soft fade Out1-Out2	136-150	Hard switch Out2-Out3
016-030	Soft fade Out2-Out3	151-165	Hard switch Out1-Out3
031-045	Soft fade Out1-Out3	166-180	Hard switch Out1-MixA
046-060	Soft fade Out1-MixA	181-195	Hard switch MixB-MixC
061-075	Soft fade MixB-MixC	196-210	Hard switch MixD-MixE
076-090	Soft fade MixD-MixE	211-225	Hard switch MixF-MixG
091-105	Soft fade MixF-MixG	226-240	Hard switch Out1-Out2-Out3
106-120	Soft fade Out1-Out2-Out3	241-255	Hard switch Out1-MixA-Out2
121-135	Hard switch Out1-Out2		-MixB-Out3-MixC

nance work to be preformed on this unit, all parts should be replaced by genuine spare parts. Consequently, take care of your dealer or maintenance company to be authorized by the manufacturer.

■ Health advice

This unit produces and absorbs electromagnetic radiation. The strength of radiation and the sensitivity for disturbing interference matches the CE and FCC requirements. A corresponding sign is printed on the backside of the unit. Any change or modification may affect the behavior of the unit concerning electromagnetic radiation, with the CE requirements eventually not to be met any more. The manufacturer takes no responsibility in this case.

■ Functional advice

This unit is immune to the presence of electromagnetic disturbances – both conducted and radiated - up to a certain level. Under peak conditions, the unit is classified to show a "class C" performance criteria and may encounter temporary degradation or loss of function which may need manual help to recover. In such case, disconnect the AC power from the unit and reconnect it again to recover.

■ Environmental advice

This unit is build to conform to the ROHS standards and the WEEE directive 2002/96/EC of the European Parliament and of the Council of the European Union. Under these regulations, the product shall not be discarded into regular garbage at the end of its life, but shall be returned to authorized recycling stations.

■ Unpacking

Please check that the box contains the following items:

Main parts:
1 pcs. LS1243 main unit
1 pcs. mains cable
1 pcs. operation manual

Accessory parts:
1 pcs. Input connection cover
1 pcs. Input output cover
2 pcs. Cable glands
1 pcs. Security lug

If any part is missing, please contact your dealer immediately for replacement.

■ Getting started: choosing a location

Risk of fire: The LS1243 MultiWall DMX-controlled RGB LED has been designed to work in dry indoor environments at environmental temperatures up to 35 degrees Celsius. For proper operation, the unit must be operated with unobstructed air convection to its outside metal case.

Do not:

- Operate the LS1243 Multiwall DMX-controlled RGB LED batten in environments with more than 35 degrees environmental temperature or more than 75% relative humidity.
- Operate the LS1243 Multiwall DMX-controlled RGB LED batten in any closed environment smaller than 10cbm, unless forced air convection is provided.

■ Getting started: secure mounting

The LS1243 Multiwall DMX-controlled RGB LED batten can be mounted in various ways:

Floor/Wall/Ceiling mounted operation

- Make sure the factory-fitted mounting brackets are securely fastened to the main cabinet of the product.
- Adjust the angle of the mounting brackets by loosening the joint screws with a hex insert screw driver and turn the lower part to the desired position. Tighten the joint screws with a hex insert screw driver accordingly.
- Fix the mounting brackets to the mounting surface where required.
- Make sure to comply with cooling and safety requirements, especially when fixing the unit overhead.

Truss-mounted operation

Risk of injury: Overhead mounting requires extensive experience, including among others calculating working load limits, good knowledge of the installation material being used, and periodic safety inspection of all installation material and the unit. If you lack such qualifications, do not attempt the installation yourself. Improper installation can result in body injury. Be sure to complete all rigging and installation procedures before applying power to the unit.

C 5	MixB	C15	MixL
C 6	MixC	C16	MixM
C 7	MixD	C17	MixN
C 8	MixE	C18	MixO
C 9	MixF	C19	All outputs full on

“SLA” DMX Slave Mode

Press the MODE button (5) until the display shows “SLA”, indicating operation in “SLA” (SLAVE) mode. In this mode the unit is set to DMX-channel 001 in order to receive the signals from a master-unit of the Multiform LS series being in mode "A" or "C". The unit interprets CH1 as Out1 level, CH2 as Out2 level and CH3 as Out3 level. CH4 is not in use, and the potentiometer (1) is disabled.

This mode can also be used for remotely controlling the unit if no specific DMX address is needed and channels 001-003 can serve as a default. To indicate that the unit is controlled by an external DMX signal, the DMX LED (3) is lit.

“d” Mode (DMX Mode)

Press the MODE button (5) until the display shows “d”, indicating operation in “d” (DMX) mode. Shortly after that, the display shows the DMX starting address. You can choose any DMX starting address by simply using the UP/DOWN buttons (6/7). The chosen DMX-address comes effective approximately 3 seconds later and will show up on the display (2) in alternation to the “d”. This allows control of the unit by any external DMX signal sending on the chosen channel.

In this mode the potentiometer (1) is disabled.

The unit receives DMX values on a packet of four channels and mirrors the received data on the DMX output (13). If a DMX signal is present the DMX LED (3) will turn on. The four channels control the unit as follows:

DMX channel	Value Range	Function
CH1	000-255	Out1 level
CH2	000-255	Out2 level
CH3	000-255	Out3 level
CH4	000-127	Master level
	128-227	Tact (128=slow / 227=max. speed 23 Hz)
	228-255	Master level full on, Tact off

Addressing has to be done as follows:

A 7	Soft fade MixD-MixE	Speed
A 8	Soft fade MixF-MixG	Speed
A 9	Soft fade Out1-Out2-Out3 (RGB)	Speed
A10	Hard switch Out1-Out2	Sound-activation, Speed
A11	Hard switch Out2-Out3	Sound-activation, Speed
A12	Hard switch Out1-Out3	Sound-activation, Speed
A13	Hard switch Out1-MixA	Sound-activation, Speed
A14	Hard switch MixB-MixC	Sound-activation, Speed
A15	Hard switch MixD-MixE	Sound-activation, Speed
A16	Hard switch MixF-MixG	Sound-activation, Speed
A17	Hard switch Out1-Out2-Out3	Sound-activation, Speed
A18	Hard switch Out1-MixA-Out2-MixB-Out3-MixC	Sound-activation, Speed
A19	Random speed Out1-MixA	None
A20	Random speed Out2-Out3	None
A21	Random speed Out1-Out3	None
A22	Random speed Out1-Out2-Out3	None
A23	All outputs tacted	Sound-activation, Speed
A24	Out1 tacted	Sound-activation, Speed
A25	Out2 tacted	Sound-activation, Speed
A26	Out3 tacted	Sound-activation, Speed
A27	Out1-Out2-Out3 chaser tacted	Sound-activation, Speed

"C" Colour Mode

Press the MODE button (5) until the first digit on the display shows "C", indicating operation in "C" mode. Then choose by using the UP/DOWN buttons (6/7) one of the 19 presets as shown in the list below. Changing the setting becomes effective directly. Knob (1) determines the output level.

In "C" mode, the unit does not receive any values from the DMX input but generates related DMX values on the output according to the selected pattern, so that other similar units from the Multiform LS series can show the same behaviour if they are connected by DMX signal cables and set to Slave Mode "SLA".

NOTE: The "C" Mode is automatically disabled and can not be chosen when an external DMX signal is received [DMX indicator LED (3) is lit].

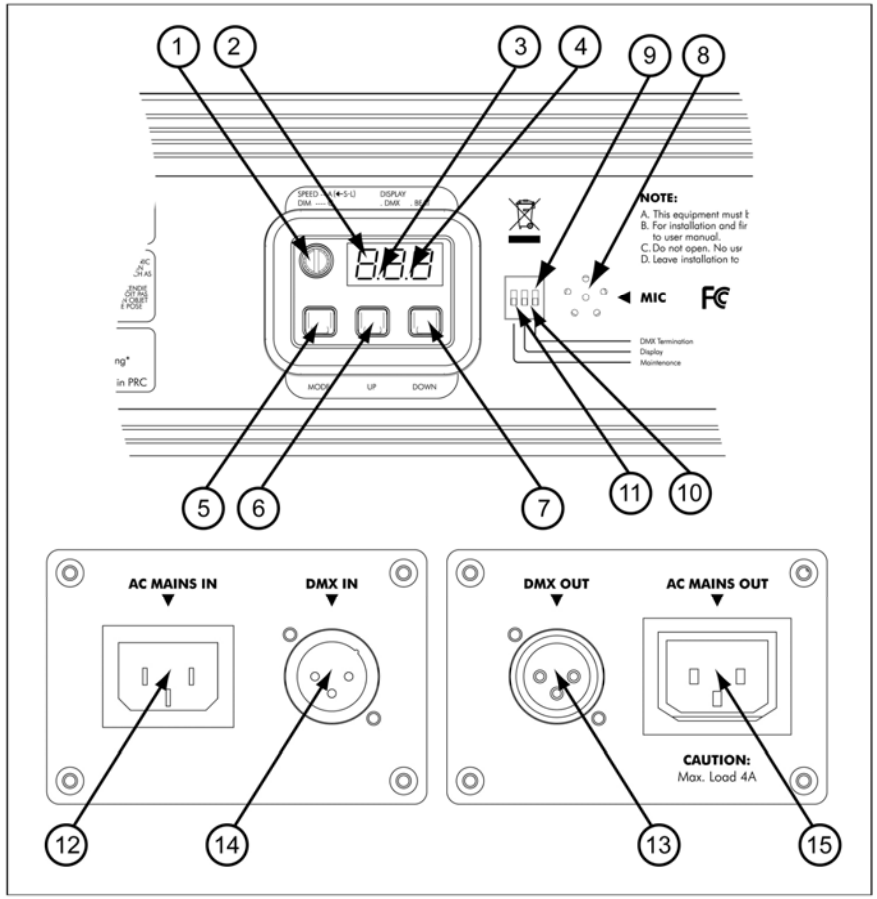
If you leave mode "C" for any reason and come back later into mode "C", the unit will recall the last chosen mix (even if the unit was switched off in between).

Available colour presets:

C 0	all off	C10	MixG
C 1	Out1	C11	MixH
C 2	Out2	C12	MixI
C 3	Out3	C13	MixJ
C 4	MixA	C14	MixK

- Dismantle the factory-fitted mounting brackets by removing the 4 screws that hold them in place. You will find one M10 thread insert below each of the removed mounting brackets.
- Fix a truss hook to the M10 mounting points with screws of appropriate length. Please note the internal length of the tread is only 10mm which requires an M10 screws not longer than 10mm+truss hook thickness. Be sure to use an appropriately rated clamp.
- Make sure that the installation area can hold a minimum point load of 10 times the device's weight.
- Attach the supplied M6 safety lug to the rear side thread insert rigging point and secure the installation with an appropriate safety cable, fixed to an individual, separate mounting point. Be sure to only use the designated rigging point for the safety cable - never secure a safety cable to any other point like a carrying handle etc.
- Always use a certified safety cable that can hold 12 times the weight of the device when installing the unit. This secondary safety attachment should be installed in a way that no part of the installation can drop more than 20cm if the main attachment fails.
- Never stand directly below the device when mounting, removing, or servicing the fixture. Make sure the area below the installation place is free from unwanted persons during rigging, de-rigging and servicing.
- The operator has to make sure that the safety-relating and machine-technical installations are approved by an expert before using them for the first time. The installations should be inspected every year by a skilled person to be sure that safety is still granted.
- Make sure to comply with cooling requirements.

■ Operation



User interface overview:

1 In A-Mode: Speed Control (except A1 = Mix Control)
In C-Mode: Level-Control
2 Display showing the Mode, DMX-address, LOC-function etc.
3 Indicates presence of a DMX signal
4 Indicates the sound-activated mode (internal microphone)
5 MODE selection button
6 UP-button
7 DOWN-button

8 Internal microphone
9 Switches on the termination for the last unit in the DMX-chain
10 Switching the display on or off (with delay)
11 Maintenance (not in use)
12 Power-Input 90-250V AC
13 DMX-Output connector
14 DMX-Input connector

Upon the user's choice, the unit can work stand-alone or may be controlled by external DMX-controllers. Available modes:

"A" Auto Mode

Press the MODE button (5) until the first digit on the display shows "A", indicating operation in "A" (AUTO) mode. Then choose your desired pattern by using the UP/DOWN buttons (6/7), see list below. Changing the setting becomes effective 1 second after the new setting is made to allow stepping through presets without previewing all intermediate presets.

NOTE: The "A" Mode is automatically disabled and can not be chosen when an external DMX signal is received [DMX indicator LED (3) is lit].

Whilst being in pattern A 1 (static scene), turning knob (1) determines the mix, whereas being in one of the other 26 patterns, knob (1) controls the speed or selects the sound-activated function (refer to below pattern list). The sound-activated function can be activated by setting the knob (1) inside the first 10 degrees of its travel from left detent and it works from a built-in microphone (8) which picks up the environmental sound. Its activity is shown by the flashing of the right dot (4) in the display. The level for all patterns is maximum.

In "A" mode, the unit does not receive any values from the DMX input, but generates related DMX values on the output according to the selected pattern, so that other similar units from the Multiform LS series can show the same pattern if they are connected by DMX signal cables and set to Slave Mode "SLA".

If you leave mode "A" for any reason and come back later into mode "A", the unit will recall the last chosen pattern (even if the unit was switched off in between). Pattern list:

#	Description	Function of Knob (1)
A 0	All off	None
A 1	Static scene	Mix
A 2	Soft fade Out1-Out2	Speed
A 3	Soft fade Out2-Out3	Speed
A 4	Soft fade Out1-Out3	Speed
A 5	Soft fade Out1-MixA	Speed
A 6	Soft fade MixB-MixC	Speed